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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,576	06/02/2000	Masae Sato	02860.0647	6622
22852	7590	05/06/2004	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 1300 I STREET, NW WASHINGTON, DC 20005			RAIZEN, DEBORAH A	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/585,576

Applicant(s)

SATO, MASAE

Examiner

Deborah A. Raizen

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-14 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 5, 9 and 15-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Kohno et al. (6,028,717).

In regard to claims 1, 18, and 19 Kohno discloses a zoom lens (Fig. 1) to form an image of an object with variable magnification between a shortest focal length and a longest focal length, comprising: a first lens group having a positive refracting power (Gr1, col. 1, line 54); a second lens group (Gr2) positioned closer to the image than the first lens group (Fig. 1) and having a negative refracting power (col. 1, line 55); and a third lens group (Gr3) positioned closer to the image than the second lens group (Fig. 1) and having a positive refracting power (col. 1, line 58); wherein when the magnification is changed from the shortest focal length to the longest focal length, the third lens group is shifted toward the object (arrow under Gr3 in Fig. 1) and the first lens group and the second lens group are shifted in such a manner that a distance between the first lens group and the second lens group is increased (Fig. 1) and a distance between the second group and the third group is decreased (Fig. 1), wherein the third lens group

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comprises at least a single positive lens (the lens with surfaces r10 to r11) and at least a single negative lens (r12-r13), and wherein a variable magnification ratio of the zoom lens is four times or more (Table 1 in col. 11 gives the longest focal length of 19.3 mm and the shortest focal length of 3.4 mm, for a ratio of 5.7).

In further regard to claim 18, Kohno discloses a video camera (col. 1, line 14; claims 47-51), comprising: an image pick-up element (claims 47-51, first two lines of each), and a zoom lens having the recited features, as explained above.

In further regard to claim 19, Kohno discloses a digital still camera (col. 1, line 13; claims 47-51), comprising: an image pick-up element (claims 47-51, first two lines of each), and a zoom lens having the recited features, as explained above.

In regard to claim 2, in the Kohno zoom lens, the variable magnification ratio is five times or more (5.7, from the focal lengths disclosed in Table 1).

In regard to claim 3, in the Kohno zoom lens, the first lens group comprises at least a single positive lens (r3-r4 in Fig. 1) and at least a single negative lens (r1-r2).

In regard to claim 4, the Kohno zoom lens satisfies the following formula:

$$4.5 < f_l/f_w < 20 \quad (17.5 / 3.4 = 5.1)$$

where f_l is a focal length of the first lens group (calculated from Table 1), and f_w is the shortest focal length of the zoom lens (disclosed at the top of Table 1).

3. Claims 1, 6, 7, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibayama (5,694,253).

In regard to claim 1, Shibayama discloses a zoom lens (Figs. 1 and 2) to form an image of an object with variable magnification between a shortest focal length and a longest focal length,

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comprising: a first lens group having a positive refracting power (G1; col. 1, line 60); a second lens group (G2) positioned closer to the image than the first lens group (Fig. 1) and having a negative refracting power (col. 1, line 61); and a third lens group (G3) positioned closer to the image than the second lens group (Fig. 1) and having a positive refracting power (col. 1, lines 61-62); wherein when the magnification is changed from the shortest focal length to the longest focal length, the third lens group is shifted toward the object (Fig. 2) and the first lens group and the second lens group are shifted in such a manner that a distance between the first lens group and the second lens group is increased (Fig. 2) and a distance between the second group and the third group is decreased (Fig. 2), wherein the third lens group comprises at least a single positive lens (the first lens element from the object side) and at least a single negative lens (the third lens element from the object side), and wherein a variable magnification ratio of the zoom lens is four times or more (col. 9, line 26 gives the longest focal length of 194.00 mm and the shortest focal length of 28.80 mm, for a ratio of 6.7).

In regard to claim 6, the Shibayama zoom lens further comprises a fourth lens group (G4) positioned closer to the image than the third lens group (Fig. 1) and having a positive refracting power (condition 15 in col. 4, line 43, and in Table 1, is positive).

In regard to claim 7, in the Shibayama zoom lens, when the magnification is changed from the shortest focal length to the longest focal length, the fourth lens group is shifted toward the object (Fig. 2).

In regard to claim 10, in the Shibayama zoom lens, the zoom lens satisfies the following formula:

$$32^{\circ} < \omega_w < 50^{\circ} \text{ (col. 9, line 28: } 2\omega = 76.61 \text{ so } \omega = 38.3^{\circ})$$

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where ω_w is a half angle of view on the condition that the zoom lens is structured to effect the shortest focal length.

In regard to claim 11, in the Shibayama zoom lens, the second lens group comprises three negative lenses (Fig. 1: the first, second and fourth lens elements) and a positive lens (the fifth) arranged in this order from the object.

In regard to claim 12, in the Shibayama zoom lens, the zoom lens satisfies the following formula:

$$1.5 < f_l/f_w < 20 \quad (\text{as calculated from Table 1, } f_l \text{ is } 76.25, \text{ so the ratio is } 2.6)$$

where f_l is a focal length of the first lens group, and f_w is the shortest focal length of the zoom lens.

4. Claims 1, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Betensky (4,299,454).

In regard to claim 1, Betensky discloses a zoom lens (Figs. 5 and 5a, bottom of col. 9, and col. 10) to form an image of an object with variable magnification between a shortest focal length and a longest focal length, comprising: a first lens group having a positive refracting power (G1); a second lens group (G2) positioned closer to the image than the first lens group (Fig. 5) and having a negative refracting power (Fig. 5); and a third lens group (GR) positioned closer to the image than the second lens group (Fig. 5) and having a positive refracting power (Fig. 5); wherein when the magnification is changed from the shortest focal length to the longest focal length, the third lens group is shifted toward the object (Figs. 5, 5a) and the first lens group and the second lens group are shifted in such a manner that a distance between the first lens group and the second lens group is increased (Figs. 5, 5a) and a distance between the second

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group and the third group is decreased (Figs. 5, 5a), wherein the third lens group comprises at least a single positive lens (L10) and at least a single negative lens (L11), and wherein a variable magnification ratio of the zoom lens is four times or more (Table XIII gives the longest focal length of 105.0 mm and the shortest focal length of 25.5 mm, for a ratio of 4.1).

In regard to claim 13, the Betensky zoom lens further comprises an aperture stop (shown in Fig. 5 between L7 and L8), and when the magnification is changed from the shortest focal length to the longest focal length, an aperture diameter of the aperture stop becomes larger (col. 1, lines 36-40; col. 10, lines 6-7; and the value of $f/No.$ in Table XIII; the disclosure that the $f/No.$ (relative aperture) stays constant even though the aperture stop is axially fixed means that the aperture diameter increases when zooming because it has to compensate for the smaller angle of light, and hence lower light flux, collected).

In regard to claim 14, in the Betensky zoom lens, the aperture stop is provided between the second lens group and the third lens group (Fig. 5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 13 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Kohno et al. (6,028,717) in view of Tsuji et al. (4,763,998).

In regard to claim 13, Kohno discloses the zoom lens of claim 1, as explained above, further comprising an aperture stop (A in Fig. 1). However, Kohno does not disclose that the aperture diameter becomes larger. Tsuji discloses that in zoom lenses, when the magnification is changed from the shortest focal length to the longest focal length, an aperture diameter of the aperture stop becomes larger (col. 1, lines 64-66). Furthermore, Tsuji discloses that this change in diameter maintains a constant speed (light flux collected by the image pickup) (col. 1, lines 66-67) even if the axial position of the aperture is fixed. Therefore, it would have been obvious to one of ordinary skill in the art to make the aperture diameter of the aperture stop in the Kohno zoom lens become larger with zooming because it would allow the aperture to be kept at a fixed axial position and yet maintain constant speed.

In regard to claim 13, in the Kohno zoom lens, the aperture stop is provided between the second lens group and the third lens group (Fig. 1).

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohno '717 in view of Kohno et al. (6,118,592). Kohno '717 discloses the zoom lens of claim 19, as explained above. However, Kohno '717 does not disclose that the image pick-up element is a CCD or a CMOS each having pixels more than one million. Kohno '592 discloses a similar zoom lens in a digital still camera (col. 1, line 18) wherein the image pick-up element is a CCD having pixels more than one million (col. 1, lines 25-38). Kohno '592 further discloses that such an image pick-up element is desirable for high image quality (col. 1, line 25-38). Therefore, it would have been obvious to one of ordinary skill in the art to provide as the image pick up element in the Kohno '717 zoom lens a CCD having more than a million pixels, as disclosed in Kohno '592, because such an image pick-up element would provide high quality.

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8. Claims 1, 6, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibayama (5,694,253). Shibayama discloses the zoom lens of claims 1, 6, and 7, as explained above, and discloses that the zoom lens satisfies a formula with a range that overlaps the recited range:

$0.25 < f_3/f_4 < 0.7$ (condition 15 in col. 4 discloses a range from 0.5 to 1.0)

where f_3 is a focal length of the third lens group, and f_4 is a focal length of the fourth lens group.

Furthermore, the value of condition 15 in Table 1 is 0.758. The value for the Second Embodiment, which also meets the limitations of claim 7, is 0.721.

As explained in MPEP 2144.05 [R-1], citing case law, a prima facie case of obviousness exists when a reference discloses an overlapping range. Here, Shibayama discloses an overlapping range and embodiments with values that are very close to the upper limit of the recited formula. Therefore, it would have been obvious to one of ordinary skill in the art to construct the Shibayama zoom lens so as to meet the formula because it would require only slight variation and only within the disclosed range.

Allowable Subject Matter

9. Claims 5, 9, 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:
The prior art taken either singularly or in combination fails to anticipate or fairly suggest the

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limitations of claims 5, 9, 15, 16, and 17, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper.

The prior art fails to teach a combination of all the features in claim 5. For example, these features include the detailed structure recited in claim 1 and also the limitation that the zoom lens satisfies the formula $2.9 < \beta_{3T}/\beta_{3W} < 8$, in combination with all the other limitations of the claim. In Arimoto et al. (6,191,895), the product of conditions 13 and 14 is not greater than 2.9 for any embodiment (the largest value is 2.6, which is not close enough for obviousness).

The prior art fails to teach a combination of all the features in claim 9. For example, these features include the detailed structure recited in claim 1 and also the limitation that the zoom lens satisfies the formula $3.3 < \beta_{34T}/\beta_{34W} < 8$, in combination with all the other limitations of the claim. Shibayama discloses an overlapping range of > 2 and a value of the formula in the first embodiment of 2.18, but the range is too non-specific and the values too far to make the claim obvious.

The prior art fails to teach a combination of all the features in claim 15. For example, these features include the detailed structure recited in claim 1 and also the limitation that the first lens group is shifted toward the object once after shifted toward the image, in combination with all the other limitations of the claim. Hoshi et al. (6,633,437) was filed after the filing date of the current application.

The prior art fails to teach a combination of all the features in claim 16. For example, these features include the detailed structure recited in claim 1 and also the limitation that the 3-b

lens is shifted so as to conduct focusing, in combination with all the other limitations of the claim.

Claim 17 depends on claim 16 and therefore has allowable subject matter as well.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah A. Raizen whose telephone number is (571) 272-2336. The examiner can normally be reached on Monday-Friday, from 10:00 a.m. to 3:00 p.m. Eastern Standard Time (a part-time schedule).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 (please note that this number is different from the previous two numbers provided until the summer of 2003).

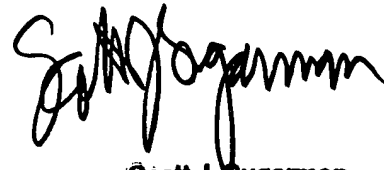
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). The Patent

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A handwritten signature in black ink, appearing to read "Scott J. Sugarman".

**Scott J. Sugarman
Primary Examiner**